

What is claimed is:

1 1. A turn signal system for a vehicle
2 comprising:
3 at least one sensor detecting road markers and
4 generating therefrom road marker signals;
5 a turn signal deactivating in response to a
6 control command;
7 a controller receiving said road marker signals,
8 said controller determining at least one of whether the
9 system is undergoing a turning condition or has
10 completed said turning condition from said road marker
11 signals, said controller generating said control
12 command when the system has completed said turning
13 condition; and
14 a redundancy system verifying said control
15 command.

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2 2. The system of claim 1 further comprising an
3 array of sensors detecting a position and a velocity of
4 the system.

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2 3. The system of claim 1, wherein said turning
3 condition comprises a turn or a lane change.

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2 4. The system of claim 1, wherein said
3 controller further generates a determination as to
4 whether the system is at rest and at a traffic light, a
5 stop sign, or other traffic regulating medium, said

6 controller generating a turn signal wait signal as a
7 function of said determination.

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2 5. The system of claim 1, wherein said turn
3 signal is activated in response to a driver input or an
4 activation signal from said controller.

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6 6. The system of claim 1, wherein said road
7 marker signals comprise road landscapes, lane marks,
8 signs, fences, and traffic lights.

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10 7. The system of claim 1, wherein said
11 redundancy system comprises a GPS system, a secondary
12 vision system, or an accelerometer system.

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14 8. The system of claim 1, wherein said
15 redundancy system comprises a GPS system comprising a
16 GPS receiver receiving signals from a satellite
17 indicating a position of the system relative to said
18 road markers.

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20 9. The system of claim 1, wherein said at least
21 one sensor comprises a vision system, a radar sensor,
22 or a lidar sensor.

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24 10. The system of claim 1, wherein said at least
25 one sensor comprises a vision system comprising a
26 camera and a vision system processor, wherein one of
27 said processor or said controller process image signal

28 data and classify said road markers, thereby generating
29 said road marker signals.

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31 11. A control method for a vehicle having a turn
32 signal comprising:

33 receiving road marker data;

34 analyzing said road marker data as a function of
35 predetermined road conditions;

36 generating a control command to turn off the turn
37 signal in response to said predetermined road
38 conditions indicating one of a turn is completed or a
39 lane change is completed;

40 verifying occurrence of said at least one of said
41 turn is completed or said lane change is completed as a
42 redundancy check; and

43 switching off the turn signal.

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45 12. The method of claim 11, wherein analyzing
46 further comprises analyzing whether said road marker
47 data indicates that the vehicle is stopped, is turning,
48 has completed a turn, is changing lanes, or has
49 completed a lane change.

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51 13. The method of claim 11, wherein verifying
52 further comprises receiving satellite tracking
53 information for the vehicle and generating a verified
54 turn completed signal as a function of a determination
55 that the vehicle has completed said turn or generating
56 a verified lane change signal as a function of a

57 determination that the vehicle has completed said lane
58 change.

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60 14. The method of claim 11, wherein verifying
61 further comprises determining whether the vehicle is in
62 motion or stopped for longer than a threshold amount of
63 time.

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65 15. The method of claim 11, wherein generating
66 further comprises checking whether the vehicle is
67 traveling above a threshold speed for the vehicle
68 making a lane change and below said threshold speed for
69 the vehicle turning at an intersection.

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71 16. The method of claim 11, further comprising
72 generating a warning signal when the turn signal is
73 activated while a blind spot vehicle prohibits lane
74 changing.

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76 17. The method of claim 11, wherein switching of
77 the turn signal further comprises switching off the
78 turn signal when the turn signal has been activated for
79 a threshold length of time wherein no turning or lane
80 changing operation has occurred.

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82 18. A control method for a vehicle having a turn
83 signal comprising:

84 activating the turn signal;

85 receiving road marker data;

86 analyzing said road marker data as a function of
87 predetermined road conditions, thereby determining
88 whether said road marker data indicates that the
89 vehicle is stopped, is turning, has completed a turn,
90 is changing lanes, or has completed a lane change;
91 generating a control command to turn off the turn
92 signal in response to said predetermined road
93 conditions indicating one of a turn is completed or a
94 lane change is completed;
95 verifying occurrence of said at least one of said
96 turn is completed or said lane change is completed
97 through a GPS system as a redundancy check;
98 generating a verified turn completed signal as a
99 function of a determination that the vehicle has
100 completed said turn or generating a verified lane
101 change signal as a function of a determination that the
102 vehicle has completed said lane change; and
103 switching off the turn signal in response to at
104 least one of: said verified turn completed signal, said
105 turn is completed, said a lane change is completed, or
106 a signal indicating the turn signal has been activated
107 for a threshold length of time wherein no turning or
108 lane changing operation has occurred.
109
110 19. The method of claim 18 further comprising
111 generating a warning signal when the turn signal is
112 activated while a blind spot vehicle prohibits lane
113 changing.
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115 20. The method of claim 18, wherein verifying
116 further comprises determining whether the vehicle is in
117 motion or stopped for longer than a threshold amount of
118 time.